

REMARKS

In response to the Final Office Action mailed February 2, 2006, Applicants respectfully request reconsideration. To further the prosecution of this application, each of the issues raised in the Office Action is addressed herein.

Claims 1 to 42 are pending in this application, of which claims 1, 5, 7, 8, 9, 13, 15, 18, 20, 21, 23, 26, 28, 29, 30, 33, 35, 38, 40 and 41 are independent claims. Claims 1, 2, 11, 12, 23 and 32 have been amended herein. No new matter is added. The application as now presented is believed to be in allowable condition.

A. Allowed Claims

Applicants note with appreciation that claims 5, 7, 8, 13-20, 26, 28, 29 and 33-40 presently are allowed.

B. Claim Rejections under 35 U.S.C. §103

On page 6 of the Office Action, claims 1-4, 6, 9-12, 23-25, 27, and 30-32 (including independent claims 1, 9, 23 and 30) were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Michael et al. (U.S. Patent No. 4,656,398) in view of Phares (U.S. Patent No. 5,420,482). Applicants respectfully traverse these rejections as improper for at least the reasons discussed in detail in Applicants' prior response dated November 9, 2005.

1. Claims 9 and 30

Claim 9 is directed to a track lighting apparatus comprising, *inter alia*, an essentially rigid linear or curvilinear-shaped housing, and at least one pair of essentially rigid electrically conductive tracks mechanically coupled to the housing and configured to provide power and data to a plurality of lighting fixtures when the fixtures are coupled to the at least one pair of electrically conductive tracks. Claim 9 also recites that the at least one pair of electrically conductive tracks includes *only one pair of electrically conductive tracks* to provide both the power and the data in parallel to the plurality of lighting fixtures (emphasis added). Claim 30 is a method claim the closely follows the language of claim 9.

Neither Michael nor Phares discloses or suggests only one pair of electrically conductive tracks for providing both power and data in parallel to a plurality of lighting fixtures. Instead, Michael clearly requires three pairs of electrically conductive tracks (i.e., a total of six electrically conductive tracks) just to provide control signals to glowing LED ribs attached to the housing of the lighting fixture. Moreover, Michael further requires another three conductive tracks to provide power to an incandescent light bulb; hence, in total, Michael requires nine conductive tracks. Similarly, Phares clearly requires two pairs of conductors, namely one pair of conductors to provide power and another second pair providing DATA signals, to interconnect multiple lighting units (Phares Fig. 1, col. 2, lines 51-57).

On page 5 of the Final Office Action, in the fifth full paragraph, the Examiner contends that:

Michael does not have nine conductive tracks. Applicant does not clearly indicate or show where the nine conductive tracks are located in Michael. Figure 3 of Michael very clearly shows that only one pair of electrically conductive tracks exists in which track (82) for providing power and another track (134) for providing data [sic] (emphasis original).

Applicants respectfully disagree, and direct the Examiner's attention initially to the three-pin connector 148 and the six-pin connector 146 shown in Michael's Fig. 3.

In particular, the connectors 148 and 146 shown in Michael's Fig. 3 are employed to plug a main controller 132 into a standard overhead track assembly 82 and an auxiliary track assembly 134, respectively (Michael; col. 3, line 65 to col. 4, line 16). Each of the pins of the connectors 148 and 146 corresponds to a single electrically conductive track of one of the track assemblies; as is clear from Michael's disclosure, Michael uses the term "track" to describe the assembly of a rigid member equipped with multiple conductors, i.e., electrically conductive tracks (e.g., a strip of mylar etched with multiple longitudinal electrical contact strips).

More specifically, as evidenced by the three pins 354, 356 and 357 of the three-pin connector 148 and the corresponding circuit diagram of Michael's Fig. 14, the track assembly 82 includes **three electrically conductive tracks**, namely, a first conductive track serving as a drive line (354) and a second conductive track serving as a return line (356) for controlling the

incandescent lamp 34. A third conductive track serves as a ground line (357) (Michael, col. 7, lines 41-43).

Similarly, as evidenced by the six pins of the connector 146 and the corresponding circuit diagram of Michael's Fig. 14, the track assembly 134 includes **six electrically conductive tracks**, namely, a drive line 344 for controlling the LEDs of light element group A, a return line 346 for light group A, a drive line 348 for controlling light group B, a return line 350 for light group B, a drive line 352 for controlling light group C, and a return line 354 for light group C (Michael, col. 7, lines 35-40). In the track assembly 134, a strip of mylar 156 is adhesively or otherwise secured to the upper boundary 152a of groove 152 (Michael, col. 4, lines 10-12; Fig. 3). Six etched longitudinal electrical contact strips serve as the electrically conductive tracks, and extend in parallel along the mylar strip 156 for selective electrical contact with the six pins of connector 146.

Thus, it is clear that Michael indeed requires nine electrically conductive tracks, in contrast to the Examiner's assertions. In view of the foregoing, both Michael and Phares fail to disclose or suggest providing both power and data in parallel to the plurality of lighting fixtures only via one pair of electrically conductive tracks. Therefore, claims 9 and 30 patentably distinguish over the combination of Michael and Phares, and are in condition for allowance.

2. Claims 1 and 23, and claims dependent thereon

Although Applicants believe that independent claims 1 and 23 are patentable as pending prior to the Final Office Action, claims 1 and 23 nonetheless have been amended herein in an effort to advance prosecution toward allowance.

In particular, claim 1 has been amended to recite a track lighting apparatus, comprising, *inter alia*, an essentially rigid linear or curvilinear-shaped track housing, and at least one LED-based lighting fixture mechanically coupled to the track housing. The at least one LED-based lighting fixture includes a fixture housing and a plurality of LEDs *disposed within the fixture housing* (emphasis added). The plurality of LEDs are configured to generate sufficient visible light so as to provide an effective amount of ambient illumination in an environment to be occupied by an observer of the ambient illumination. Claim 23 is a method claim that closely follows the language of independent apparatus claim 1.

Phares and Michael, either alone or in combination, fail to disclose or suggest the apparatus and method recited in claims 1 and 23, respectively. In particular, Phares and Michael fail to disclose at least one LED-based lighting fixture coupled to an essentially rigid track housing, wherein the lighting fixture includes a fixture housing and a plurality of LEDs disposed within the fixture housing.

As discussed in Applicants' prior response, Michael's lighting assembly includes a conventional incandescent lamp or bulb 34 disposed within a housing 10 (main body cylindrical portion) of the lighting assembly to provide illumination (e.g., see Michael's Fig. 2). Michael's lighting assembly also includes decorative ribs attached to an *exterior* surface of the lighting assembly housing (col. 5, lines 62-64; Fig 1, reference characters 72, 40, 54, 60 and 62). Each of the decorative ribs is formed of a translucent material and includes one or more LEDs which cause the rib to glow in a red, green or yellow color when the LEDs are appropriately energized (col. 5, lines 64-65; col. 6, lines 8-12). As shown in Fig. 1, these decorative "glowing LED ribs" may be positioned circumferentially around the exterior of different housing sections of the lighting assembly.

As also discussed in Applicants' prior response, Phares neither discloses an essentially rigid track housing, nor a plurality of LEDs configured to generate sufficient visible light so as to provide an effective amount of ambient illumination.

In contrast to both Michael and Phares, claims 1 and 23, as amended, recite at least one LED-based lighting fixture including a fixture housing and a plurality of LEDs *disposed within the fixture housing*, wherein the plurality of LEDs are configured to generate sufficient visible light so as to provide an effective amount of ambient illumination in an environment to be occupied by an observer of the ambient illumination. Since neither Michael nor Phares discloses such features, claims 1 and 23 are believed to patentably distinguish over Michael and Phares, alone or in combination, and hence are in condition for allowance.

Claims 2-4, 6, 10-12, 24, 25, 27, 31, and 32 depend from one of claims 1 and 23, and are allowable based at least upon their dependency.

3. Examiner's Comments on Applicants' Prior Response

With respect to the Examiner's rebuttal to Applicants' prior response, which begins on page 2 of the Final Office Action, Applicants address below each of the issues raised therein.

a. Reliance on Phares and Motivation to Combine

On page 3 of the Final Office Action, the Examiner contends that he "has not ever combined any Phares' fixture including lighting units, track structure, cable, etc. with Michael." Applicants respectfully submit that this statement is false. Specifically, in the prior Office Action dated August 9, 2005, on page 3, the Examiner unambiguously alleges that "Phares teaches a **track** comprising a plurality of lighting fixtures (44) in order to provide a decorative lighting [sic]" (emphasis added). As discussed in Applicants' prior response dated November 9, 2005, Phares clearly fails to teach a track. By the Examiner's own statements indicated immediately above, the Examiner now also agrees that indeed Phares fails to teach a track.

More specifically, on page 3 of the Final Office Action, the Examiner contends that reliance on the Phares reference in rejecting the claims was merely to show "an example of a system for *decorative use* comprising plural lighting units" and that allegedly "it would have been obvious to one of ordinary skill in the art to duplicate Michael's his [sic] own lighting fixture into to [sic] a plural form for *decorative lighting*, as taught by Phares (i.e., the teaching or ideas of using plural lighting units and an intended use for *decorating*)" (emphasis added).

Thus, from the Examiner's own comments, the Examiner clearly concedes that Phares at best relates to decorative lighting, and as such adds no teaching or suggestion whatsoever regarding LEDs that are configured to generate sufficient visible light so as to provide an effective amount of ambient illumination in an environment, as recited in Applicants' independent claims 1 and 23. Applicants fully agree with the Examiner in this regard.

However, Applicants do not admit (as alleged by the Examiner) that "rendering larger illumination coverage" is an appropriate motivation for combining Phares with Michael, and in no way do Applicants contradict themselves in any prior arguments. Again, the Examiner concedes, as quoted above, that Phares relates to *decorative* lighting. Accordingly, it is disingenuous of the Examiner to then contend that a motivation for combining Phares with Michael is to "render larger illumination coverage," when Phares can provide no benefit in this

regard. Applicants recognize that the Examiner appears to be relying on the motivation of “rendering larger illumination coverage” for “adding lighting loads” to Michael – however, the teachings in Phares on which the Examiner appears to be relying, in the Examiner’s own words, relate solely to decorative lighting, and not illumination coverage. Thus, while “rendering larger illumination coverage” arguably might provide some motivation for adding lighting loads to Michael (provided that the added lighting loads are capable of providing illumination coverage), this clearly is not a viable motivation for combining features of Phares’ *decorative* lighting with Michael to achieve a purported goal of “rendering larger illumination coverage.”

b. Alleged Indefiniteness Issues Regarding Claims 1 and 23

On page 4 of the Final Office Action, the Examiner contends that the phrase “sufficient visible light so as to provide significant ambient illumination,” as previously recited in claims 1 and 23, is indefinite. The Examiner appears to have improperly asserted this allegation of indefiniteness, however, as the Final Office Action fails to include any formal rejections of claims 1 and 23 under 35 U.S.C. §112, second paragraph.

While Applicants do not agree that claims 1 and 23 were indefinite as previously presented, for completeness and in an effort to expedite allowance, Applicants’ have further amended claims 1 and 23 to address the Examiner’s concerns regarding indefiniteness. Specifically, claims 1 and 23 have been amended to recite the generation of sufficient visible light from a plurality of LEDs “so as to provide an effective amount of ambient illumination in an environment to be occupied by an observer of the ambient illumination.”

MPEP §2173.05 (c) III states that the phrase “an effective amount” is definite where the amount is not critical, and those skilled in the art would be able to determine from the written disclosure, including examples, what an effective amount is (see *In re Halleck*, 422 F.2d 911, 164 USPQ 647 (CCPA 1970)). The phrase “an effective amount” also has been held to be definite when the claim states the function which is to be achieved (i.e., generating sufficient visible light) and only one effect can be implied from the specification (i.e., providing an effective amount of ambient illumination) (see *In re Fredericksen* 213 F.2d 547, 102 USPQ 35 (CCPA 1954)). MPEP §2173.05 (c) III also points out that more recent cases have tended to accept a limitation such as “an effective amount” as being definite when read in light of the

supporting disclosure and in the absence of any prior art which would give rise to uncertainty about the scope of the claim (see *Ex parte Skuballa*, 12 USPQ2d 1570 (Bd. Pat. App. & Inter. 1989)).

The specification of the present application includes several examples of ambient illumination provided by LED-based light sources that would be readily appreciated by those skilled in the art. Some examples include, but are not limited to, illumination of home, office, work, institutional/professional and entertainment (e.g., theatre) environments (see Figs. 54, 73, 74, 83, 85 and other figures).

In the Final Office Action, on page 4, the Examiner asks “how bright is the light so that it can fit [sic] to generate sufficient visible light so as to provide significant ambient illumination?” The Examiner then states that, in his “perspective and interpretation, all lights or colored glows including one or more LEDs (e.g., Michael) for decorative purpose or any other purpose are sufficient visible light that can provide enough significant illumination.” Applicants respectfully disagree with the Examiner’s interpretation in this regard.

With respect to “illumination” as discussed in Applicants specification and recited in Applicants’ claims 1 and 23, the primary purpose of ambient illumination is to facilitate visibility in a given environment. More specifically, with respect to apparatus and methods configured to provide ambient illumination, an observer typically does not look directly at the source of light that provides the ambient illumination; rather, the observer generally perceives light from illumination indirectly, as it is reflected off of surfaces or objects in the illuminated environment, so that the surfaces or objects can be viewed. For example, the primary purpose of a light bulb is not to look directly at the bulb, but rather to illuminate a room (i.e., provide light that is reflected off of the surface of the walls of the room and whatever is in the room) so as to facilitate visibility in the general environment, and/or specific objects in the environment.

In contrast to devices that provide ambient illumination and that are generally perceived indirectly, lighted “display” or decorative devices (for example, a computer monitor, a traffic message board, a stadium scoreboard, ornamental lighting, etc.) often provide text/graphics information, or attract an observer’s attention (e.g., via some visible lighting effect), when the observer looks directly at light emitted from the device (e.g., Christmas tree lighting, indicator or other decorative lighting, lights on a message board showing a text message, etc.). Based on the

foregoing, it is clear then that the lighting system of Phares, as well as the glowing LED ribs in Michael, are intended to be viewed directly as display or decorative devices.

With the foregoing distinction in mind, the terms “ambient illumination” as used in claims 1 and 23 refer to light that is specifically intended to facilitate visibility in a given environment. Ambient illumination is perceived primarily indirectly, as reflected off of one or more surfaces and/or objects in the environment. Such an interpretation is fully consistent with the common everyday usage of this words; for example, one speaks generally about “ambient illumination” when describing a light fixture for lighting up a room or some other space.

As such, Applicants respectfully submit that “an effective amount of ambient illumination,” as recited in claims 1 and 23, is definite. For purposes of clearly defining the scope of the claims, an exact amount of ambient illumination is not critical, and those skilled in the art readily would be able to determine from the several examples provided in Applicants’ specification that which constitutes an effective amount of ambient illumination. In this regard, claims 1 and 23 state the function which is to be achieved (i.e., generating sufficient visible light), and the specification provides examples of the desired effect (i.e., providing an effective amount of ambient illumination). Accordingly, based on MPEP §2173.05 (c) III, claims 1 and 23 as presently pending are believed to be definite.

Furthermore, as also noted in MPEP §2173.05 (c) III, claims 1 and 23 are believed to be definite not only when read in light of the supporting disclosure, but also given the absence in the cited Phares and Michael references of any teaching or suggestion that would give rise to uncertainty about the scope of claims 1 and 23. More specifically, given the meaning of the terms “ambient illumination” set forth above, there can be little doubt that the lighting modules of Phares or the glowing LED ribs of Michael would fail to provide an effective amount of ambient illumination; again, clearly these devices are intended to be viewed directly as decorative lighting devices, and not intended to facilitate visibility in an environment.

As discussed in Applicants’ prior response dated November 9, 2005, Phares is completely silent regarding the prospect of using the disclosed lighting system to facilitate visibility in an environment – in contrast, all of Phares’ disclosed implementations clearly relate to direct viewing of Phares’ lighting system (e.g., ornamental Christmas tree lighting and display signs for

advertising purposes (Phares, col. 7, lines 55-60; col. 8, lines 50-53)). Hence, there is no disclosure in Phares that would give rise to uncertainty about the scope of claims 1 and 23.

Similarly, Michael's glowing LED ribs are not intended to facilitate visibility in an environment, and hence do not provide "ambient illumination" as recited in claims 1 and 23. Rather, at best, individual LEDs in Michael provide specific and local illumination of a translucent member or "rib" on a housing of Michael's lighting assembly, wherein the rib in turn glows with the color of light emitted by the LED(s) (Michael, col. 2, lines 3-20; col. 5, line 62 – col. 6, line 58). Michael specifically describes the glowing LED ribs as something to be viewed directly to provide a variety of visual effects (the glowing LED ribs are positioned circumferentially around the exterior of different housing sections of Michael's lighting assembly, and ribs disposed on different housing sections may be independently controlled to glow a particular color (i.e., red, green or yellow) to produce a variety of visual effects (Michael, col. 6, lines 23-25; col. 7, lines 20-26; col. 8, lines 54-66)).

Accordingly, while one or more LEDs in Michael may be employed to illuminate a translucent rib so as to glow in a particular color, the glowing LED ribs themselves do not in turn provide an effective amount of ambient illumination to the environment. Rather, as discussed in Applicants' prior response, in Michael's lighting assembly it is *an incandescent bulb that provides ambient illumination* and clearly not the glowing LED ribs; it is explicitly the role of the incandescent bulb 34 shown in Michael's Fig. 2 to provide appreciable ambient illumination from Michael's lighting assembly (Michael, col. 7, line 65 – col. 8, line 14).

It is particularly noteworthy that nowhere in the reference does Michael disclose or suggest that Michael's lighting assembly should be operated *without the incandescent bulb*. This underscores the fact that, in Michael's assembly, the glowing LED ribs placed on the exterior of the lighting assembly housing *themselves* do not provide an effective amount of ambient illumination; otherwise, if they did, it stands to reason that Michael would have readily discussed such an implementation. The inability of Michael's glowing LED ribs to provide ambient illumination is in contrast to claims 1 and 23, where it is specifically recited that LEDs generate sufficient visible light so as to provide an effective amount of ambient illumination. Hence, as with Phares, there is no disclosure in Michael that would give rise to uncertainty about the scope of claims 1 and 23.

For at least the foregoing reasons, again claims 1 and 23 are believed to be definite.

C. Claim Rejections under 35 U.S.C. §112

On page 6 of the Office Action, claims 21, 22, 41, and 42 were rejected under 35 U.S.C. §112, second paragraph, for allegedly being indefinite. Applicants respectfully traverse these rejections.

On page 2 of the Office Action, the Examiner comments on Applicants' previous arguments in connection with these rejections. In particular, the Examiner contends that:

...The quoted limitation is not understood because the word "reflected" cannot provide any functional action or behavior to the term "energy". In the Examiner's best understanding of science, illumination or light can be reflected. But energy cannot be reflected. Therefore, Examiner questioned applicant how energy can be reflected if the energy is not an illumination or light. Or in other words, how can electrical voltage or current be reflected? (emphasis original)

In response to the foregoing, Applicants respectfully submit that the construct of a **transmission line** provides a commonly known example of electrical energy transmission, reflection, and loss. Generally, a transmission line is a material medium or structure that forms all or part of a path from one place to another for directing the transmission of **energy**, such as electromagnetic waves or acoustic waves, as well as electric power transmission. Common components of transmission lines include wires, coaxial cables, dielectric slabs, optical fibres, electric power lines, and waveguides. As is well known in the relevant arts, transmission lines transmit energy in the form of electromagnetic or acoustic signals that may have frequencies or wavelengths well outside of the visible spectrum; stated differently, indeed energy may be transmitted by visible light, *as well as electromagnetic waves other than those constituting light or illumination*.

For purposes of analysis, an **electrical** transmission line can be modelled as a two-port network (also called a quadrupole network), as follows:



In the simplest case, the network is assumed to be linear (i.e. the complex voltage across either port is proportional to the complex current flowing into it *when there are no reflections*), and the two ports are assumed to be interchangeable. If the transmission line is uniform along its length, then its behavior is largely described by a single parameter called the *characteristic impedance*, often denoted as Z_0 . This is the ratio of the complex voltage to the complex current at any point on the line. Typical values of Z_0 are 50 or 75 ohms for a coaxial cable, about 100 ohms for a twisted pair of wires, and about 300 ohms for a common type of untwisted pair used in radio transmission.

When sending energy down a transmission line, it is usually desirable that all the energy is absorbed by the load and none of it is reflected back to the source. This can be ensured by making the source and load impedances equal to Z_0 , in which case the transmission line is said to be “matched.” However, if one or both of the source and load impedances are not equal to the characteristic impedance Z_0 , *energy is reflected* from one or both of the transmission line terminations (indicated by Port A and Port B in the above illustration).

In view of the foregoing, the Examiner’s position that “energy cannot be reflected” is patently wrong. Accordingly, the rejections of claims 21 and 41 under 35 U.S.C. §112, second paragraph, should be withdrawn. Claims 22 and 42 depend from claims 21 and 41, respectively, and the rejections of claims 22 and 42 similarly should be withdrawn.

D. Conclusion

It is respectfully believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment set forth in the Office Action does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Furthermore,

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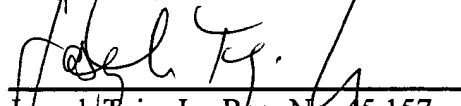
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nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify any concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' representative at the telephone number indicated below to discuss any outstanding issues relating to the allowability of the application.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to **Deposit Account No. 23/2825**, reference **C1104.70048US01**.

Respectfully submitted,



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